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Introduction

What is a Smart Starter?

A Smart Starter changes “extra” moments in a classroom setting into teachable moments. They are designed to take short amounts of time. However, Smart Starters are NOT short on substance. The Smart Starters in this book are packed full of important skills to practise and polish or to reinforce and extend.

When are Smart Starters used?

As their name suggests, they are good for igniting learning. Instead of the slow move into a class period, lesson or school day, a Smart Starter quick-starts the action. Each one warms up the brain with a sparkling challenge. Students also need this kind of spark at times other than the beginning of the day or class period. Use a Smart Starter any time there is a lull, or any time students need a break from a longer activity. They work effectively to stimulate thinking at the beginning, end or middle of a class period, or any other time you can squeeze in an extra ten minutes.

Why use Smart Starters?

They’re energising! They’re stimulating! They’re fun! They nudge students to focus on a specific goal. They “wake-up” tired minds. They require students to make use of previously acquired knowledge and skills. Because of their short length, they give quick success and quick rewards – thus inspiring confidence and satisfaction for the learners.

How to Use This Book ...

Kick-Off a New Unit

The starters are grouped by science strands. One or more of them might help to ease students into a new area of study. For instance, start off a unit on space objects with *Extraterrestrial Questions*, or a fitness-nutrition unit with *Would You? Could You?* Or, use *Spinning Eggs* to introduce students to density concepts.

Spark a Longer Lesson

Any one of these short activities can be expanded. A starter may inspire your students to develop more questions along the same lines –expanding the warm-up into a full-blown science lesson.

Review a Concept

Dust off those rusty skills with a Smart Starter. For instance: Have students been away from study of the body systems for a while? Refresh what they know about the skeletal system with *Bone Maps*. Or, strengthen their knowledge of weather events with *Weather or Not*. Any of these Smart Starters will help to reinforce concepts previously introduced.

Charge-Up Thinking Skills & Ignite Creativity

The Smart Starters are not only for science lessons. Use them any time to stimulate minds. Doing a Smart Starter will sharpen thinking processes and challenge brains. In addition, Smart Starters work well as starting points for students to create other (similar) questions and problems.

SKILL: Skeletal System



Bone Maps

Pair students to strengthen knowledge of the major bones in the human body. Use self-adhesive note pads to label the “bone maps”.

1. Write the names of the major bones, each one on a self-adhesive note:

humerus	metacarpals	phalanges	pelvis
tibia	patella	carpals	scapula
radius	ribs	skull	metatarsals
ulna	tarsals	mandible	femur
fibula	clavicle	sternum	

2. Turn your body (or a friend's body) into a bone map by sticking the notes to the correct places.
3. Finish a bone map for both partners in ten minutes.



Would You? Could You?

Carefully consider these fitness and nutrition questions. Answer each one *yes* or *no*.

1. Could you find protein in lentils? _____
2. Could you get aerobic benefit from stretching? _____
3. Could you increase flexibility with weightlifting? _____
4. Could you get carbohydrates from a bowl of peaches? _____
5. Could you get a good supply of fat from cheese or butter? _____
6. Would you help your body repair damaged cells if you ate fish? _____
7. Would you be building heart strength if you went biking regularly? _____
8. Would you get fibre in your diet by eating yoghurt? _____
9. Would you build strength if you paddled a canoe regularly? _____
10. Would you build arm strength by climbing stairs? _____

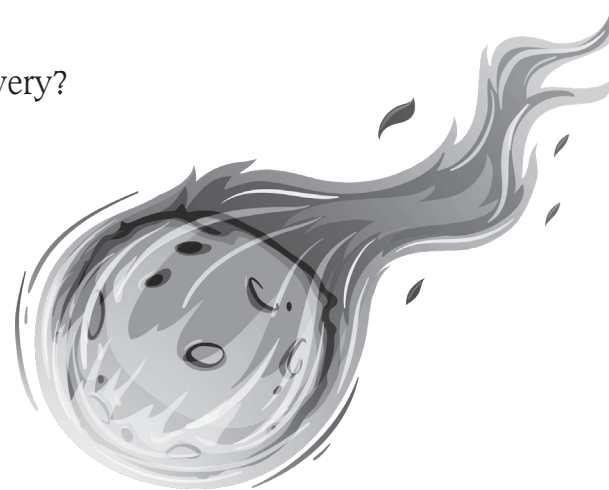
SKILL: Space Bodies and Events



Extraterrestrial Questions

Thousands of interesting items other than the major planets are whirling around beyond Earth. Check up on extraterrestrial awareness by posing these questions aloud. Ask for a yes or no answer. If the answer is no, students should explain why.

1. Is cosmic dust likely to be found between planets?
2. Is a comet's coma thicker than its nucleus?
3. Is a comet named after the observatory used during its discovery?
4. Is the asteroid belt found between Mercury and Venus?
5. Is a fireball a name for an unusually bright asteroid?
6. Could a meteorite be seen flying through space?
7. Do comets orbit the Sun?
8. Is a meteor sometimes called a shooting star?
9. Could a comet's tail be as long as a million kilometres?
10. Is it true that part of a comet is frozen?





SKILL: Weather

Weather or Not?

Give a weather condition from the list to a pair of students. Their job is to find the specific details and definition of that condition and create a weather report that forecasts it – or not. Their forecast can be accurate or phony. When the reports are presented to the class, classmates must decide whether the report is accurate. They show their decision by raising a sign that says “Weather” if the description is correct OR a sign that says “NOT!” if the description is in error.

Examples:

Frozen raindrops will keep refreezing and fall to the ground as heavy dew.

“NOT!”

We are officially in a drought period. There has been no precipitation for weeks.

“Weather!”

Weather Conditions

snow

hail

sleet

drought

cyclone

dew

typhoon

cold front

warm front

blizzard

rain

thunderstorm

cyclone

tornado

monsoon

high humidity

tornado watch





Spinning Eggs

Use eggs to examine one way density affects the behaviour of matter.

1. Get a raw egg and a hard-boiled egg.
2. Mark a stripe on the hard-boiled egg so you can tell them apart.
3. Stand each egg on one end and spin it.
4. Record the results.
5. Next, spin each egg on its side.
6. Try to stop them both with one touch of your finger.
7. Record the results.
8. Try to explain the results.

Density is the amount of mass packed into a given unit. It is the ratio of an object's mass to its volume. As density increases, molecules of a substance are closer together, because there are more molecules per cubic unit.